High Prevalence of CTX-M-15-Producing Klebsiella pneumoniae Isolated From Patients at Tehran Hospitals, Iran

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Background & Objectives: CTX-M-type β-lactamases are increasingly becoming the predominant ESBLs globally in recent years. The aim of this study were to determine the antibiotic susceptibility and to detect the genes encoding some blaCTX-M groups among the K. pneumoniae isolated from Tehran hospitals, Iran.

Methods: A total of 200 isolates were collected from different clinical samples during March - December 2011 and identified as *K. pneumoniae* using biochemical tests. A PCR Methods was used to detect the 16S–23S internal transcribed spacer unit of *K. pneumoniae subsp. pneumoniae,* facilitating identification of this organism. Susceptibility of isolates to 14 different antibiotic disks was determined using agar disk diffusion methods. The combination disk methods was used for phenotypic detection of the ESBL- producing strains. To amplify the blaCTX-M the template DNA was extracted by boiling methods.

Results: All 200 strains were susceptible to imipenem except one. Most of the isolates showed high level of antibiotic resistance: augmentin (121/200, 60.5%), cefotaxime and ceftriaxone (120/200, 60%), aztreonam (118/200, 59%), and ceftazidime (114/200, 57%). The phenotypic confirmatory test detected 115 from 200 isolates (57.5%) as ESBL producer.The prevalence of blaCTX-M-1 group was 114 from 200 strains (57%), that all blaCTX-M-1 were identified as blaCTX-M-15 by PCR except three. The blaCTX-M-9 group was not detected.

Conclusion: The results showed that blaCTX-M-15 is the dominantblaCTX-M-1 ESBL among the resistant strains of *K. pneumoniae* in Tehran. Continued monitoring of drug resistance is necessary in clinical settings for proper disease management.

Keywords: *Klebsiella pneumoniae*; Antibiotic Resistance; CTX-M β-lactamase